

AMENDMENTS TO THE CLAIMS

The following is a complete listing of all claims in the subject application with the status of each claim being indicated in a parenthetical expression. Claims 1-28 not being amended herewith are presented in clean version. Claims 29-46 are being canceled.

1. (Original) An intraoperative neural monitoring system comprising
a power source; and
a stimulator powered by said power source to deliver a complete cycle of biphasic electrical stimulation for application to anatomical tissue, said stimulator delivering said complete cycle of biphasic electrical stimulation as a first group of a selected number of positive or negative pulses automatically followed by a second group of a selected number of pulses of reverse polarity to said pulses of said first group.
2. (Original) The intraoperative neural monitoring system recited in claim 1 wherein said stimulator is powered by said power source to alternatively deliver a complete cycle of monophasic electrical stimulation for application to anatomical tissue and said stimulator delivers said complete cycle of monophasic electrical stimulation as a selected number of positive or negative pulses.
3. (Original) The intraoperative neural monitoring system recited in claim 2 wherein said first group of pulses is selectable as being positive or negative and said pulses of said complete cycle of monophasic electrical stimulation are selectable as

being all positive or all negative.

4. (Original) The intraoperative neural monitoring system recited in claim 3 wherein said pulses are selectable to have a current amplitude from 0 to 200 mA.

5. (Original) The intraoperative neural monitoring system recited in claim 4 wherein said current amplitude of said pulses of said second group is the same as said current amplitude of said pulses of said first group.

6. (Original) The intraoperative neural monitoring system recited in claim 4 wherein the number of said pulses in each of said first group and said second group is selectable to be 1 to 8 pulses and the number of said pulses in said complete cycle of monophasic electrical stimulation is selectable to be 1 to 8 pulses.

7. (Original) The intraoperative neural monitoring system recited in claim 6 wherein the number of said pulses in said second group is the same as the number of said pulses in said first group.

8. (Original) The intraoperative neural monitoring system recited in claim 4 wherein said pulses are selectable to have a duration in the range of 100 to 500 microseconds.

9. (Original) The intraoperative neural monitoring system recited in claim 4

wherein said complete cycle of biphasic electrical stimulation includes a predetermined fixed interval between said first group of pulses and said second group of pulses of about 2 seconds.

10. (Original) The intraoperative neural monitoring system recited in claim 4 wherein said complete cycle of biphasic electrical stimulation comprises a delay between successive pulses in each of said first group and said second group of pulses and said complete cycle of monophasic electrical stimulation includes a delay between successive pulses, said delay being selectable to be in the range of 2 to 4 milliseconds.

11. (Original) The intraoperative neural monitoring system recited in claim 1 wherein said power source comprises a power console electrically connectible to said stimulator.

12. (Original) An intraoperative neural monitoring system comprising
a power source;
a stimulator powered by said power source to deliver a complete cycle of biphasic electrical stimulation for application to anatomical tissue, said stimulator delivering said complete cycle of biphasic electrical stimulation as a first group of one or more positive or negative pulses followed by a second group of one or more pulses of opposite polarity to said pulses of said first group; and
an activator actuatable by a user to complete an activation that starts delivery of said first group of pulses, said activation being effective to deliver said complete cycle

of biphasic electrical stimulation.

13. (Original) The intraoperative neural monitoring system recited in claim 12 wherein said activator is actuatable to complete said activation in a two-step procedure performed by the user.

14. (Original) The intraoperative neural monitoring system recited in claim 13 wherein said activator comprises a hand switch.

15. (Original) The intraoperative neural monitoring system recited in claim 13 and further comprising a power console electrically connected to said stimulator, said power console having a touch screen, and said activator comprises a control option on said touch screen.

16. (Original) The intraoperative neural monitoring system recited in claim 12 wherein said stimulator is powered by said power source to alternatively deliver a complete cycle of monophasic electrical stimulation for application to anatomical tissue, said stimulator delivering said complete cycle of monophasic electrical stimulation as one or more positive or negative pulses, and said activation is effective to deliver said complete cycle of monophasic electrical stimulation.

17. (Original) An intraoperative neural monitoring system comprising a power console providing a power source and a display screen;

a patient interface unit electrically connectible to said power console, said patient interface unit being connectible to monitoring electrodes placed at areas of a patient's body to detect responses to a first form of electrical stimulation and a second form of electrical stimulation for display on said display screen, said patient interface unit being connectible to monopolar and bipolar stimulating probes for applying said first form of electrical stimulation to anatomical tissue of the patient, said patient interface unit delivering said first form of electrical stimulation up to a current amplitude of about 30mA; and

a stimulator electrically connectible to said power console, said stimulator being connectible to a pair of stimulating electrodes placed at areas of a patient's body for applying said second form of electrical stimulation to anatomical tissue of the patient, said stimulator delivering said second form of electrical stimulation to a first one of the stimulating electrodes for return via a second one of the stimulating electrodes in a positive phase for said second form of electrical stimulation and delivering said second form of electrical stimulation to the second one of the stimulating electrodes for return via the first one of the stimulating electrodes in a negative phase for said second form of electrical stimulation, said stimulator delivering said second form of electrical stimulation up to a current amplitude of about 200 mA.

18. (Original) The intraoperative neural monitoring system recited in claim 17 wherein said first form of electrical stimulation comprises continuous constant current monophasic DC pulses and said second form of electrical stimulation comprises a cycle of a selectable number of constant current DC pulses, said cycle having a mode

selectable as a monophasic cycle or a biphasic cycle.

19. (Original) The intraoperative neural monitoring system recited in claim 18 wherein said pulses in said monophasic cycle are all of said positive phase or all of said negative phase, and said pulses in said biphasic cycle comprise a first group of said pulses which are all of said positive phase or all of said negative phase followed by a second group of said pulses which are opposite in phase from said pulses of said first group.

20. (Original) The intraoperative neural monitoring system recited in claim 19 wherein said pulses of said first form of electrical stimulation are selectable to have a pulse width in the range of 50 to 250 microseconds and a rate of 1 to 10 pulses/second, said pulses of said second form of electrical stimulation are selectable to have a pulse width in the range of 100 to 500 microseconds, said number of pulses in said monophasic cycle is selectable to be in the range of 1 to 8 pulses, said number of pulses in said biphasic cycle is selectable to be in the range of 1 to 8 pulses for said first group and an equal number of pulses for said second group, said biphasic cycle includes a fixed interval of about 2 seconds between said first group and said second group of pulses, said biphasic cycle includes a delay between successive pulses in said first group and said second group, and said monophasic cycle includes said delay between successive pulses, and said delay is selectable to be in the range of 2 to 4 milliseconds.

21. (Original) The intraoperative neural monitoring system recited in claim 20 wherein said display screen comprises a touch screen presenting a plurality of displays including control options for selecting said pulse width, said current amplitude, said rate, said number of pulses, said delay and said mode.

22. (Original) The intraoperative neural monitoring system recited in claim 19 and further including an activator actuatable by a user for initiating delivery of said second form of electrical stimulation, wherein actuation of said activator to initiate delivery of said second form of electrical stimulation effects delivery of said monophasic cycle or said biphasic cycle in its entirety.

23. (Original) The intraoperative neural monitoring system recited in claim 19 wherein said patient interface unit includes a plurality of monitoring channels each connectible to a pair of monitoring electrodes.

24. (Original) The intraoperative neural monitoring system recited in claim 23 wherein said display screen includes a first monitoring display for displaying waveforms representing responses detected by the monitoring electrodes for each of said monitoring channels when said first form of electrical stimulation is applied to the patient and a second monitoring display for displaying waveforms representing responses detected by the monitoring electrodes for each of said monitoring channels when said second form of electrical stimulation is applied to the patient.

25. (Original) The intraoperative neural monitoring system recited in claim 24 wherein said second monitoring display includes a waveform display area for simultaneously displaying responses detected by the monitoring electrodes in response to said first group and said second group of said pulses in said biphasic cycle.

26. (Original) The intraoperative neural monitoring system recited in claim 24 wherein said second monitoring display includes a waveform display area for simultaneously displaying responses detected by monitoring electrodes on the left and right sides of the patient's body.

27. (Original) The intraoperative neural monitoring system recited in claim 24 wherein said touch screen includes a control option for selecting an event threshold by which detected responses above said event threshold are signaled.

28. (Original) The intraoperative neural monitoring system recited in claim 24 wherein said touch screen includes a control option for setting an artifact delay by which the influence of artifact on detected responses is distinguished.

29-46. (Canceled)